**Instruction and Technology in the Content Area**

**Dr. P. Duncan**

**Journal Article Review**

“Necessity is the Mother of Invention: Changing Power Dynamics Between Teachers and Students in Wired Art Classrooms” by Joanna Black; University of Manitoba. Canadian Review of Art Education: Research and Issues, Vol. 36, Page 99 – 117, 2009, Peer Reviewed.

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This article appears to have an intended audience of art teachers and administrators; however, it is my opinion that it contains information useful to teachers in any subject area and to parents interested in current trends in the educational process.

The general problem area under discussion seems to be the differing ways that the use of technology can be incorporated in pedagogy influenced by and depending on such factors as available funds for continuing professional development in the use of technology, teachers’ level of expertise in the technology employed vis a vis their students’ level of expertise and general philosophical standpoint on the issue of teacher-centered versus student-centered learning.

The author discusses a study conducted among teachers at two Canadian schools regarding their use of technology in the art classroom. The primary focus of this discussion is the different approaches to pedagogical technique taken by the two schools. Both schools are adequately equipped with technological resources, such as, individual laptops for all students as well as computer projection technology. The different approaches employed by the two schools in utilizing these resources seems to be primarily influenced by two inter-related factors. The first being the availability to the faculties of the respective schools of educational resources and professional development with regard to the use of the technology, and the second being the teachers’ knowledge of and expertise with the use of these technologies relative to that of their students.

The author’s major findings and conclusions relate to the different methods used at each school with regard to employing technology. More specifically, in the first school, Glen Manor, teachers are more advanced in their knowledge of the technologies employed than their students as a result of the teachers’ on-going training in the use of these technologies and are thus able or inclined to maintain a relatively autocratic, teacher-centered, somewhat 19th century model of disseminating information to the students from a position of authority while using 21st century technological means. In the second school, Pleasant Dale, the technology available is basically equivalent to that at Glen Manor; however, there is dramatically less time and funds available for the continuous training necessary to keep the teachers up to date in the rapidly changing developments in technology. This set of affairs has created the necessity referred to in the title of the article for inventing a teaching methodology consistent with both a relatively high degree of technological equipment concurrent with a low level of expertise on the part of the teachers in employing this equipment. Consequently, the practice has emerged at Pleasant Dale for the teacher to assume the role of facilitator who guides the students through project centered learning in which the students themselves work out through trial and error the best ways of using the equipment and not infrequently assume the role of teaching techniques and procedures to the teachers.

In the course of the article, the author defines the word ‘luddite’ used to describe a person who is a novice working with digital technology and also the term ‘prosumer’ to describe youth who are involved with Web 2.0 technologies and are active users of technology. Four full pages of references are provided, most of which are recent, but some extend as far back as 1972. The author summarizes the research methods used which was basically cross-case studied research with data collected over a two and half year period using interviews, observations, field notes, and archival information. Further elaboration of details regarding the participants and their number is supplied, and I feel that this information as well as the outcomes of the study is adequately summarized. No illustrations, tables, or graphs are included nor are areas for further study recommended.

It is interesting to note that at Glen Manor where the teachers are exceptionally well versed in the use of technology that they take pride in being a step ahead of the children. This, however, can lead to unintended consequences as in the particular case described on page 104 of the article of a student who when finding himself more advanced in the use of technology becomes disinterested and disconnected from the course of study feeling that he is ready to move on to more advanced material. This unintended consequence is a result of the autocratic 19th century “sage on a stage” method of teacher centered pedagogy becoming shattered by the student’s awareness of his own knowledge and expertise being superior to that of the teacher. Conversely, at Pleasant Dale where the teachers act more as guides and facilitators, a situation was created that was learner-centered with a project driven focus where there is much co-teaching, group work, student input and control over their learning and frequently the role reversal described above where the teacher finds himself being instructed in particular aspects of the use of technology by the students.

The contrast between these two approaches to using technology in the classroom is informative as it illustrates how new technologies can either be used to perpetuate a more traditional method of teaching or conversely can be used to create a more progressive, self-teaching, hands-on , experiential method of learning with the teacher responsible for creating and implementing curriculum and classroom management while leaving the details of working out the exact technological techniques employed to the students working as individuals or groups .

In my personal learning, I have had experience in a technology classroom run mostly along the lines of the situation described at Pleasant Dale as my instructor in the two technology courses that I have taken and am currently involved in, Dr. Duncan, has herself assumed the role of facilitator. Hence, it has been her role to assign and model projects making us fully aware of the potential of the tools and applications available yet leaving the details of how to implement these technologies to her students to work out themselves through self-teaching or cooperative group learning. This can be somewhat challenging and time consuming, yet it compels the student to more fully explore the possibilities of the technology through time spent working at it rather than having specific and limited techniques spoon-fed, as it were, directly from the teacher to the student. The sense of accomplishment when one is successful in mastering to a degree any application or technology is thus significant and rewarding. Occasionally, however, for some complicated and multi-faceted applications, such as, the use of digital image manipulation programs (e.g. – Photoshop, GIMP) step by step tutorials from the web, books, or fellow students is very helpful and appreciated.

I would conclude by saying that although I respect and appreciate the continued usefulness of a teacher-centered, top-down, pedagogical environment, this article combined with my instruction and technology course experience has truly opened my eyes to the value of a more wide open, explorative environment of self-learning, peer teaching, and group involvement employed in these courses. This has been enlightening and suggestive of techniques that I myself intend to use in the future in my role as a teacher.